



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,349	11/18/2005	Hans G. Fritz	W9543-01	2646
<div>7590 William D. Bunch W. R. Grace & Co.-Conn. Patent Department 7500 Grace Drive Columbia, MD 21044-4098</div>				
EXAMINER				
CHANG, VICTOR S				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
12/03/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/500,349

Applicant(s)

FRITZ ET AL.

Examiner

VICTOR S. CHANG

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-8, 11-23, 25, 27, 28, 30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) 15-23, 25, 27, 28, 30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Introduction

1. Applicants' remarks filed on 9/22/2008 have been entered. Claims 1, 2, 4-8 and 11-14 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In response to the amendments, the grounds of rejection have been updated as set forth below. Rejections not maintained are withdrawn.

Rejections Based on Prior Art

4. Claims 1, 2, 4-8 and 11-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sheckler et al. [US 5114584].

Sheckler's invention relates to a porous filter body comprising at least about 75 weight percent of zeolite molecular sieve material (adsorbing material) and from about 9 to about 20 weight percent of nylon [abstract; col. 3, ll. 15-16]. Various commercially available nylons include Nylon-6, Nylon-6/6, Nylon-6/9, Nylon-6/12, Nylon-11, and Nylon-12 can be used [col. 5, ll. 10-12]. Fig. 1 illustrates that a mixture of molecular sieve, powdered thermoplastic material, such as the powdered nylon, etc., is charged to a mixer to form a homogeneous mixture, transferred to a die, pressed to a green body, transferred to a furnace and heated under a reduced pressure from about 450 to about 460 °F to form a porous filter body containing less

than 0.5 wt% of moisture [col. 6, ll. 61 through col. 7, ll. 46]. The porous filter body generally has a density from about 14 to about 25 g/in³ [col. 9, ll. 18-21].

For claims 1 and 2, Sheckler's molecular sieve or zeolite reads on the "porous functional solid" of the claimed invention. Since Sheckler teaches a porous filter body, the nylon powder in the molding mixture inherently forms a polymer matrix, which necessarily has a porous structure for providing access to the adsorbing molecular sieve particles. Sheckler is silent about the pore diameter of the polymer matrix (secondary pore diameter). However, since Sheckler teaches the same subject matter for the same end use, a workable pore diameter of the polymer matrix is deemed to be either anticipated, or an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to meet end use requirements of various applications.

For claims 4 and 5, Sheckler teaches that various zeolite molecular sieves can be used [col. 3, ll. 15 through col. 4, ll. 52].

For claims 6-8, the thermal properties of nylon are deemed to be inherent to the same chemistry.

For claim 11, Sheckler teaches a molded article, which inherently has a shape.

For claim 12, Sheckler teaches that the molecular sieve has a theoretical equilibrium water capacity of 24 wt% [col. 4, ll. 42], and teaches an improved water capacity which is substantially greater than the water capacity of prior art filter bodies [col. 9, ll. 55-58]. A workable water capacity is deemed to be an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to obtain required absorbing properties for the same end use as the claimed invention.

For claim 13, Sheckler teaches that the porous filter body generally has a compressive strength of at least about 500 lb/in² [col. 9, ll. 29-32]. A workable compressive strength measured in N/m² is deemed to be anticipated, or obviously provided by practicing the invention of prior art.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheckler et al. [US 5114584].

The teachings of Sheckler are again relied upon as set forth above.

For claim 14, absence of evidence to the contrary, the Official notice in the prior Office action that "a filter body having a honeycombed geometry for an improved efficiency is common and well known" has been taken as admitted prior. It would be an obvious to one of ordinary skill in the art to make Sheckler's porous filter body in a honeycombed geometry, because the selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination. See MPEP § 2144.07. It should be noted that claim 14 was inadvertently included in the 102/103 rejection in the prior Office action. Nevertheless, the correction to withdraw the 102 rejection over claim 14 does not constitute a new ground of rejection, because it has been properly rejected under the 103 rejection as well.

Response to Arguments

6. Applicants argue at Remarks page 2 that

"there are statements in Sheckler et al. about porosity, namely in example 1 column 12, lines 26 to 30, where a pressure drop over a shaped body is discussed. This corresponds to a quite open secondary pore structure with large macroscopic pores allowing substantial amounts of fluid travelling through. This observation is supported by the Abstract describing bodies with surprisingly low densities of "about 10 to about 25 grams per cubic inch," which corresponds to 0.61g/cm³ to 1.52g/cm³. Where a porous body

possesses a density below 2g/cm^3 , a macro-porous structure is present (i.e., macropores are larger than 10 microns) allowing readable pressure drops over such bodies. In comparison, the porous body of the present invention possesses a meso-porous structure does not allow for passage of fluid or gas through the material. The corresponding bodies would have an unlimited pressure drop. The presently disclosed bodies in the present application possess a secondary pore structure that provides desirable absorption properties. The secondary pore volume recited in claim 1 is formed with pores having diameters of 4 to 3000 nm, i.e., only small interstices, which provides dense bodies having increased water pick up. There is no disclosure in Sheckler et al. regarding secondary pore volume.”

However, Sheckler’s invention is not limited to the characteristics in Example 1, nor has Sheckler indicated the porous filter must have a macro-porous structure. Further, since the claimed range of pore diameter is in the range of 4 to 3000 nm, i.e., up to 3 microns, the claimed invention includes a secondary macro-porous structure, not merely a meso-porous structure, and fails to exclude Sheckler’s invention.

Applicants argue at page 5 that

“Sheckler et al. is completely silent regarding secondary pore volume of the adsorbent body described therein. Moreover, one of ordinary skill in the art, after reviewing of Sheckler et al., would not have been motivated to form the instantly claimed secondary pore volume in the adsorbent body described therein since the teachings of Sheckler et al. lead one to macroporous or large channels of pore sizes. In addition, there are no teachings in Sheckler et al. that would enable the artisan to obtain adsorbent bodies having the instantly claimed pore sizes.”

However, since Sheckler teaches the same subject matter for the same end use, a workable pore diameter of the polymer matrix is deemed to be either anticipated, or an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to meet end use requirements of various applications.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 7:00 am - 5:00 pm, Tuesday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/
Primary Examiner, Art Unit 1794